



FABRICATION

Engineering & Design





Innovation. Solution. Fabrication. Black & McDonald delivers at every level.

The Fabrication, Engineering, and Design group of Black & McDonald is active in a wide range of commercial and industrial applications as well as highly specialized systems that are integral to today's engineering needs. From piping to sheet metal, electrical and modular fabrications, virtual construction, and engineering services, Black & McDonald leads the way with:

- *Building Information Modeling (BIM)*
- *Integrated Project Delivery*
- *Pre-Fabrication*
- *Trimble*
- *LEAN Construction*
- *LEED practices*
- *Value Engineering*
- *Pre-Construction Planning*

Before workers arrive on the site or materials are ordered, we are already involved at the strategic planning meetings for a construction project. We continue this involvement to both guide and support the project's progress through to successful completion.

By continually embracing technological advancements and investing in the knowledge and skills of our people, we strategically integrate the very best in cutting-edge methods and processes into every project. This provides enhanced benefits and significant value to our clients, both externally and internally.

After over 90 years, we still adhere to our founder's core value to do the job right, regardless.

WE BUILD IT ONCE,
BUILD IT RIGHT!



THE EXPERIENCE TO MEET
THE MOST DEMANDING CHALLENGE

Sheet Metal Fabrication Services

Our Sheet Metal and Custom Fabrication facility produces over two million pounds of capacity per year. From turnkey projects to specialty metal solutions for every form of heating, ventilation, air conditioning, exhaust, and environmental need, this Black & Donald facility dedicates its 26 thousand square feet of space to effectively service the industrial, commercial, and institutional sheet metal needs of its diverse range of clientele.

The Black & McDonald team at this facility uses state-of-the-art equipment and processes to provide on-time fabrication and delivery solutions. From same-day, cost efficient requirements for rush projects to large scale, long term, and complex endeavours for critical environments, no project is too small or large. It's what we do – day in and out.

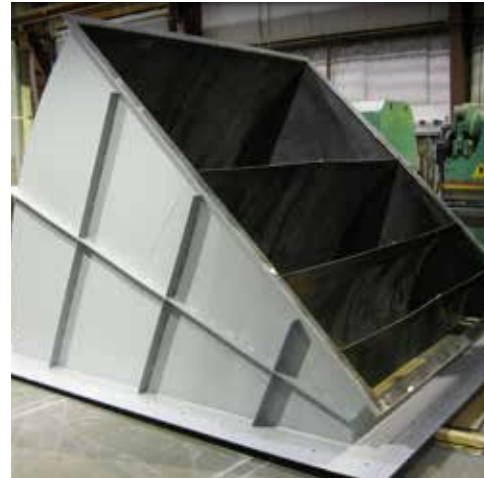
Pipe Fabrication and Custom Assemblies

Black & McDonald is always developing ways to reduce work in the field, maintain high quality control, allow more work to be completed with less costly labour, and enable proper planning with reduction of risk.

Capitalizing on our extensive experience in the manufacturing of mechanical and electrical components for conventional installation in the field, we take advantage of pre-fabrication to provide tremendous value for our clients including:

- *Savings in time and labour*
- *Reduction of overall costs*
- *Increased productivity*
- *Reduced site congestion*
- *Improved safety*

We work hard to offer the best quality possible to our customers. Successful quality programs have been implemented since 1978 on Black & McDonald projects in mechanical, electrical, instrumentation, utility and civil applications meeting applicable project-specific standards of CSA, ASME, ISO, TSSA and federal, provincial and corporate requirements.



SAVE TIME & LABOUR FROM
OUR PLANT TO YOUR SITE.

THOUSANDS OF SOLUTIONS FROM
MILLIONS OF POUNDS OF SHEET METAL.





Electrical Fabrication

Our Value Engineering at Black & McDonald is continually developing alternative methods and production processes to improve and add to our electrical fabrication solutions.

We already have implemented such innovations as:

- *Riser Brackets for Bus Ducts and Conduit*
- *Lighting Whips, cut to length, ends stripped, with connectors installed*
- *Branch Cable Wiring Harnesses for feeding laboratory benches, furniture*
- *Communication Drops, Conduit Pre-bent with Connector, Bushing & Pull-String*

In all cases, cost and/or time savings were achieved without sacrificing function. The benefits of these pre-fabricated innovations in electrical construction include:

- *Improved safety*
(construction off-site and simpler installation on-site)
- *Lean construction*
(reduced waste & packaging)
- *Optimized productivity*
(more efficient construction off-site)
- *Reduced manpower*
(fewer people required on-site)
- *Improved quality and consistency*
(controlled construction environment)

A NEW WAY OF FABRICATING
ELECTRICAL SOLUTIONS



REDUCED LABOUR AND
INCREASED SAFETY ON-SITE.

Modular Fabrication

Modular fabrication of such building components as mechanical and electrical rooms is constructed off-site at a Black & McDonald facility. Everything is assembled and tested before being broken down to be shipped as modules to the building site. These modules include everything from structural steel to wiring, piping, insulation, and painting.

By doing all of this in a controlled environment within our plant, we can closely monitor every phase of construction from start to finish and reduce the risks associated with built-in-place style of construction. It also reduces the challenges faced in local markets with limited labour supplies.

Key advantages to our clients include:

- *Reduced site congestion*
- *Better on-site health and safety*
- *Reduced environmental impact*
- *Quicker project delivery*
- *Improved coordination between trades*
- *Increased productivity on site*

PRODUCTS

- *Distribution Equipment*
- *Stands / Frames / Supports / Hangers*
- *Pump Room Assemblies*
- *Building Automation Systems / Controls*

MARKETS SERVED

- *Industrial, Commercial, Institutional*
- *Utility*
- *Facility Maintenance*
- *Manufacturing*



WE BUILD IT, TEST IT,
AND THEN SHIP IT.

MODULAR FABRICATION
IMPROVES PRODUCTIVITY.



Engineering & Design Services

A custom solution can be a costly and lengthy process. At Black & McDonald, our Engineering and Design Department utilizes industry leading Computer Aided Design (CAD) software to create virtual 3D models for their diverse clientele before committing to a solution. It helps reduce costs and time before construction even starts and ensures that our customers' needs are always met.

We provide our customers with:

- *Engineering support for fabrication and projects*
- *Detailed fabrication drawings*
- *Modular engineering*
- *Development of standardized products*
- *Creation of a standard product/methods catalogue*

Our ongoing efforts ensure that ***We Build it Once, Build it Right!***

Building Information Modelling

At Black & McDonald, every digital representation of the physical and functional features of a facility are carefully organized and stored into their Building Information Modelling (BIM) resource. This includes 3D Modelling, Digital Field Survey – Locates, Scanning, Clash, CAD / BIM Management, 4D Modelling – Schedule, and Record Drawings.

BIM takes a project from virtual model to reality using digital representation of physical and functional characteristics. It forms a central, shared knowledge resource about a facility that can be accessed during the facility's entire lifecycle from inception to operation to demolition. The benefits of this high level of detail are invaluable throughout the construction and the operation of the facility.

Construction benefits:

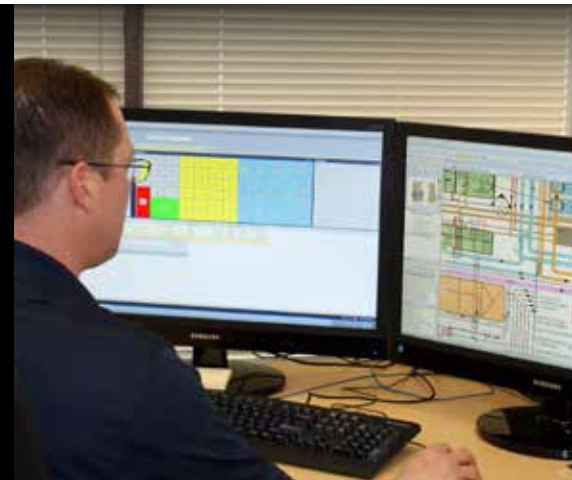
- *Improved communications by having the same details and information used by all parties*
- *Improved collaboration by ensuring all parties are fully integrated every step of the way*
- *Fewer construction changes by identifying interferences well in advance of physical work*
- *Higher quality project decisions based on the availability of in-depth details and information*
- *More comprehensive planning and scheduling as a result of extensive building information*
- *LEAN construction driven by shared resources means less waste, material, and labour*
- *Opportunities for prefabrication and modularization are more easily identified*

Operational benefits:

- *BIM is a reliable source of information and details for decisions during the facility's lifecycle*
- *Ongoing facility monitoring quickly resolves issues with detailed information in hand*
- *Maintenance and service technicians have access to original plans, schematics, and system details*
- *Renovations and remodelling projects have a solid base of information from which to work*



SEE VIRTUAL DESIGNS FIRST
TO REALIZE SAVINGS LATER.



WE CREATE A CENTRAL SOURCE
OF EVERY BUILDING DETAIL.

There's only one way at Black & McDonald. The right way.

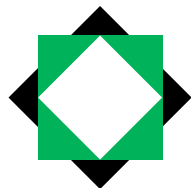
Black & McDonald is a privately-owned Canadian company that provides an integrated, multi-trade prime contracting service to governments, institutions, industry, and commerce throughout Canada and the United States. Founded in 1921, William John McDonald established a foundation of principles and beliefs that are the very core of the company:

- *Do the job right regardless*
- *Talk to the customers regularly, confirm their satisfaction*
- *Make the price fair and reasonable*
- *A deal is a good one, only when it is good for both parties*
- *Live up to your promises*
- *Treat employees with respect*
- *Complete jobs promptly*
- *Invoice promptly, fairly, and in detail*

As a result, Black & McDonald is known as a reliable and flexible contractor. With a team of over 4,500 strong, Black & McDonald lives and breathes the ultimate in engineering excellence, best of class fabrication, and unprecedented customer service. Delivering the right solution in the right way at the right price is driven by an ongoing attitude of unwavering integrity and proud tradition.

Everyone at Black & McDonald knows that continued success depends on the ability to deliver innovation and exceed client expectations. It continually rests on the shoulders of each and every member of the team.

Anything less is not the Black & McDonald way.



**The
Black & McDonald
Way**

Black & McDonald

**Black & McDonald
Fabrication, Engineering
& Design Group**

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